

Patent claims:

1. An electronic lock for a locking system (1), in particular electronic ignition lock for a motor vehicle, having a holder (11) into which an associated electronic key (2) can be introduced, and having a switching element (16) which can be actuated by introduction of the key (2) into the holder (11) and produces a signal ("key inserted" signal) in the process, the key (2), which is in the holder (11), exchanging at least one coded operating signal (9) with the lock (3), with the result that after positive evaluation of the transmitted operating signal (9) the release of the lock (3) for movement of the holder (11) by means of the key (2) into at least one actuating position can be triggered, wherein a blocking element (17), which executes an adjusting movement on introduction of the key (2) into the holder (11) and/or removal of the key (2) from the holder (11), interacts with the holder (11) in such a manner that the movement of the holder (11) additionally to its release is made possible only when the key (2) is correctly in the holder (11), wherein a separate transmitting means (25) for the adjusting movement of the blocking element (17) can be brought into operative connection with the blocking element (17) at one end and with the switching element (16) at the other end, and wherein the adjusting movement of the blocking element (17) causes the transmitting means (25) to exert a switching action on the switching element (16).
2. The electronic lock as claimed in claim 1, wherein the blocking element (17) is designed in the manner of a mechanical blocking slide (21), wherein the blocking slide (21) is preferably mounted movably on the holder (11) and/or in the immediate vicinity of the holder (11), and wherein furthermore the blocking slide (21) preferably can be brought by means of the key (2) into or out of operative connection with a groove (22)

Sub a6
in the housing (18) of the lock (3) for additional blocking or release of the movement of the holder (11).

3. The electronic lock as claimed in claim 1 or 2, wherein the blocking element (17) is subjected to a force, in particular a spring force, in the direction of the groove (22) in the housing (18) of the lock (3) in such a manner that when the key (2) is outside the holder (11) or when it is not correctly in the holder (11), the blocking element (17) protrudes into the groove (22), and wherein when the key (2) is correctly in the holder (11) the blocking element (17) is secured outside the groove (22) by the key (2).

4. The electronic lock as claimed in claim 1, 2 or 3, wherein an extension (24) on the housing (23) of the key (2) acts on the blocking element (17) so as to bring about its adjusting movement and/or for its securing.

5. The electronic lock as claimed in one of claims 1 to 4, wherein the transmitting means (25) comprises a lever which is arranged between the blocking element (17) and the switching element (16), the blocking element (17) acting on one end (33) of the lever (25), with the result that the lever (25) can be moved by the adjusting movement of the blocking element (17), and wherein the other end (34) of the lever (25) acts on the actuating member (26) of the switching element (17) [sic], with the result that during the adjusting movement of the blocking element (17) the lever (25) moves the actuating member (26) in order to exert a switching action on the switching element (17) [sic].

6. The electronic lock as claimed in one of claims 1 to 5, wherein the blocking element (17) is designed as a spring-loaded, opposed pair of slides (21, 21'), wherein a cam (27) on the blocking slide (21), in particular on one blocking slide (21) of the pair of slides (21, 21'), preferably acts on one end (33) of the lever (25), and wherein furthermore the groove (22) within the housing (18) in the lock (3) is preferably configured in the region of the cam (27) as an opening

July 06
(28), with the result that one end (33) of the lever (25) protrudes into the groove (22) on that side of the groove (22) which lies opposite the blocking element (17).

5 7. The electronic lock as claimed in one of claims
1 to 6, wherein the switching element (16) comprises an
electric switch, in particular a push-button switch
designed in the manner of a break contact element,
wherein the switching element (16) is preferably
10 provided with a fully enclosed housing (30), and
wherein furthermore the switching element (16) is
preferably fastened on a printed circuit board (29)
arranged at a distance from the holder (11), the
switching element (16) in particular being designed in
15 the manner of an SMD (surface mounted device)
component, with the result that the switching element
(16) can be fastened by its connections on the printed
circuit board (29) using SMD technology.

8. The electronic lock as claimed in one of claims
20 1 to 7, wherein the holder (11) is designed as an
element which can be moved rotationally and/or
translationally by means of the key (2), in particular
as a rotatable rotor (19), it being possible for a
rotary catch (20) to be brought into and out of
25 interaction with the rotor (19) in order to block or
release the rotor (19), wherein the released rotor
(19), on rotation into the actuating position,
preferably interacts with further switching elements
(31), which are in the immediate vicinity of the rotor
30 (19), in the manner of a load-break switch, for example
via a cam controlling means, and wherein furthermore
the blocking element (17) is preferably mounted movably
on and/or in the rotor (19).

9. The electronic lock as claimed in one of claims
35 1 to 9, wherein in the actuating position of the holder
(11) an additional blocking slide (32) is in operative
connection with the electronic key (2) in such a manner
that removal of the key (2) from the holder (11) is
prevented.